

CASE HISTORY ~ CH-043

TFT EPOXY COATINGS SEAL AND PROTECT CONCRETE DAM SURFACES AGAINST FROST AND LEAKAGE.

THE CHALLENGE: A high altitude, massive concrete buttress type dam suffered from leakage through the structure and consequent freeze/thaw damage on both the downstream and pressure-side walls during frequent periods of heavy frost. Although the dam was in no danger of structural failure, continual freeze/thaw damage was causing significant wear on the pressure side and heavy spalling damage on the downstream face.

As it is almost impossible to properly coat surfaces on the negative side of hydrostatic pressure and flowing leaks, it was necessary to identify suitable coatings able to be applied to the positive side of the dam's water flow under the prevailing cold and wet conditions at the dam.

A further requirement was that the coating must be environmentally benign to avoid any possibility of damage to local wildlife or ultimate down-stream users of the dams' water.

THE SOLUTION: TFT modified three of its standard underwater/wet surface epoxy coatings to tailor-make a product for the application. Bearing in mind the low application temperatures expected on this job, the products were modified to have lower application viscosity while still retaining excellent non-sag characteristics. They also had to have a more rapid curing reaction than normal. All three formulations were variations of a product that had received complete and unreserved approval as a coating for potable water applications.

In view of the dam's size and its pristine location, the only feasible method of surface preparation was by high-pressure water jetting at a pressure of 4,000 psi. This was effective in removing the heavy algae growth to expose firm, granular concrete.



Roller applications of 10 sq.ft. each were carried out immediately after water jetting at ambient temperature of 45°F while the surface was still running wet. To compound the wetness, it was raining heavily during the application and subsequent curing period.

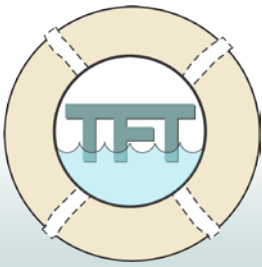
RESULT: After nine months of weathering and one winter, the test results were evaluated. All three products were found to be in perfect condition with adhesion to the concrete so great that it was impossible to remove coating without removing the underlying concrete.

BIO-GARD 257 was chosen as the best candidate for further trials because of its excellent adhesion and exposure results as well as its overall greatest ease of application by brush or roller under adverse conditions.

For more information regarding this project, contact:

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PRODUCT: BIO-GARD 257

YEAR: 2005

LOCATION: SNOWDON,

We go where others fear to spread!

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